

**UNITED STATES OF AMERICA
DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION
RENTON, WASHINGTON 98055-4056**

In the matter of the petition of

DuganAir Technologies, Inc.

for an exemption from § 25.365(e) of Title 14,
Code of Federal Aviation Regulations

**Regulatory Docket No.
FAA-2003-15826**

GRANT OF EXEMPTION

By letter of July 30, 2003, Mr. Peter Swift, 1715 114th Ave. SE Suite 230 Bellevue, WA 98004, petitioned for a temporary exemption from the decompression requirements of § 25.365(e) of Title 14, Code of Federal Aviation Regulations (14 CFR). The proposed exemption, if granted, would allow DuganAir until August 30, 2003, to show full compliance with the subject regulations for the reinforced flightdeck door installation on two (2) Boeing 737-300 airplanes, serial numbers 23631 and 23411, and US registration N371FA and N550FA.

The petitioner requests relief from the following regulations:

Section 25.365(e), as amended by Amendment 25-0, requires “If a pressurized cabin has two or more compartments separated by partitions, bulkheads, or floors, the structure supporting the prescribed flight and ground loads (and any other structure that, if it failed, could interfere with continued safe flight and landing) must be designed to withstand the effects of sudden release of pressure in any compartment through an opening resulting from the failure or penetration of an external door, window, or windshield panel, or from structural fatigue or penetration of the fuselage in this compartment, unless it is shown that the probability of failure or penetration is extremely remote.”

The petitioner supports it's request with the following information:

In accordance with FAR 11.63 and 11.81, DuganAir Technologies, Inc. formally files for a petition for a temporary exemption for full compliance with the decompression requirements associated with the installation of the reinforced flightdeck door on the Boeing 737-300 aircraft operated by Falcon Air Express. A temporary exemption until August 30, 2003, when granted, would provide sufficient time to incorporate the necessary decompression provisions and associated structural analysis. Specifically, this request for exemption concerns two (2) Boeing 737-300 aircraft, a/c serial number 23631, US-registration N371FA and a/c serial number 23411, US-registration N550FA.

“Description

“Final certification on the 737-300 is being performed by similarity with the B737-200 cockpit door already approved and STC'd by the FAA (STC ST01182SE) During the review process it has been noticed that the decompression data available from the OEM differs from data available for the 737-200 and we are continuing to work with the FAA to define an acceptable analysis. Additionally, the door surround structure must be demonstrated to meet similarity requirements and due to the many variations of the 737-300 and availability of drawings for accurate cross-reference this task requires additional man-hours to complete.

“The Boeing 737-300 aircraft involved will therefore need to be granted a temporary exemption for full compliance with the decompression requirements (while fully meeting all other relevant requirements). This specifically concerns decompression resulting from the loss of a windshield on the flightdeck.

“Regulations

“This temporary exemption, when granted, would in practice extend the situation that already existed from the date of the initial SFAR 92 regulations regarding provisionally re-inforced flightdeck doors, October 2001, until April 9, 2003. During that period a general waiver was in force with respect to the decompression requirements, provided that the airline could show the airworthiness consequences of such formal non-compliance to the satisfaction of the FAA .

“The recently issued SFAR 92-5 extends this exemption for aircraft in service and before midnight April 9, 2003 equipped with a re-inforced flightdeck door meeting the intrusion and ballistic requirements until July 31, 2003 . These conditions have been met on the Boeing 737-300 aircraft in question, DuganAir Technologies, Inc. feels that the extension provisions of SFAR 92-5 can serve as an example for authority to handle a specific request for approval of temporary non-compliance with FAR 25.365 (e) at amendment 22, which is the original certification basis of the Boeing 737-300 aircraft.

“To that intent this document provides the necessary substantiation of an acceptable delay (until August 30, 2003 at the latest) to incorporate the decompression and installation provisions.

“Substantiation for temporary exemption

“1. What is the probability of a full windshield loss (assumed to lead to the loss of the aircraft if equipped with the re-inforced flightdeck door) ?

“Facts & assumptions:

- “There have been five (5) rapid decompression events due to flightdeck windshield failures in worldwide service experience of all transport category aircraft types since about 1950, ref. the document attached to the e-mail with which this document was sent.
- “Worldwide service experience of all transport category aircraft types since about 1950 equals about 750×10^6 flights.
- “Windshield failure is assumed to happen at maximum cabin pressure differential.
- “The effect of a full windshield loss at maximum cabin pressure differential is assumed to lead to the loss of the aircraft if the aircraft is equipped with the re-inforced flightdeck door.
- “For reasons of due conservatism (possibility of some events not included in the above mentioned document), the quantitative assessment is based on 10 events in 10^9 flights.

“The above leads to a catastrophic event probability of 1×10^{-8} per flight cycle.”

“2. What would be an acceptable period for this assumed catastrophic risk to remain present on the (very limited number of) aircraft to be modified in the period considered?”

An AD related chance of an accident which is 25% of the 14 CFR 25.1309 maximum determined risk (failure rate) of 10^{-7} for the sum of 10 specific catastrophic failure modes in 10 systems. These concept rules are based on 10 AD situations per 40000 flight cycles. Considering 20 AD situations on an aircraft life of 80000 FC (which is considered more realistic) this results in an equally distributed acceptable risk of:

$$0.25 \times 10^{-7} \times 80000 / 20 = 1 \times 10^{-4} \text{ per AD.}$$

Comparing the risk of a catastrophic event during the assumed non-compliance period with the above AD approach, the petitioner concludes that the risk present is approximately an order of magnitude lower than would normally justify an AD. In addition the much longer period during which similar risks were already accepted by the FAA and other authorities under the initial SFAR 92 and subsequent regulations and amendments justifies the extension requested.

“ECONOMIC AND PUBLIC IMPACT

“Failure to grant this exemption will impact the operator and the public in the following manner:

- “These aircraft represent 30% of the fleet for Falcon Air Express, 100% of Aero Honduras d/b/a Solair Fleet, and 50% of the Aeromar Fleet. They operate daily scheduled service routes between Miami, Florida and the Dominican Republic for Aeromar, the Dominican Republic flag carrier and between Miami, Florida and Honduras, Nicaragua and San Salvador for Aero Honduras d/b/a Solair, the Honduran Flag carrier.
- “The catastrophic economic impacts for both the passengers and the air carriers operating these routes for an indefinite period of time will result in:
 1. “Displaced Passengers Aeromar - 260 per day / 1820 per week / 7280 per month.
 2. “Economic Hardship to Aeromar for 260 passengers per day x \$150.00 per ticket \$39,000.00 per day or 273,000.00 per week or \$1,092,000.00 per month.
 3. “Displaced Passengers Solair - 520 per day / 3640 per week / 14,560 per month.
 4. “Economic Hardship to Solair for 520 passengers per day x \$150.00 per ticket \$78,000.00 per day or 546,000.00 per week or \$2,184,000.00 per month.
 5. “Falcon Air Express sub service cost or \$236,000.00 per week for Solair & \$105,750.00 per week for Aeromar, totaling \$431,000.00 per week or \$1,724,000.00 per month.
 6. “Falcon Air Express Lease payments \$125,000.00 per aircraft per month totaling \$250,000.00 per month.
 7. “Falcon Air Express undetermined legal costs (Contract cancellation, passenger displacement summer travel packages, Aircraft Lessor lease revocation for damages of default).
- **“Immediate impact to Falcon Air Express in terms of employee layoffs:**
 - 16 Pilots
 - 32 Flight Attendants
 - 7 Line Mechanics
 - 2 Inspectors
 - 2 Flight Dispatchers
 - 15 Additional personnel comprised of Ticket Counter Agents, Ramp Agents, Clerks, etc.

“Immediate impact to Solair in terms of employee layoffs:

“US Operation

23 Employees including Sales, Reservations, Accounting, and Airport personnel in Miami and Dallas

“Central America Operation

52 Employees in 5 cities (Tegucigalpa, San Pedro Sula, Managua, San Salvador, and Roatan)

“Immediate impact to Aeromar in terms of employee layoffs:

“US Operation

12 Employees including Sales, Reservations, Accounting and Airport personnel in Miami

“Dominican Republic Operation

17 Employees in 2 cities (Santo Domingo and Santiago)

- **“Humanitarian and social consequences**

“In cases of cities in Honduras where medical attention is not up to par with the United States, Solair is constantly used to bring severe cases to the US for medical attention.

“Solair, as well as, Aeromar are used for humanitarian endeavors such as the transportation of doctors and ophthalmologist to cities in Honduras; religious missionaries from world missions to the Dominican Republic and Central America; and volunteer educators to Central America.

“Moreover, the Pan American Games being held in the Dominican Republic, disruption of service will have a drastic impact on the return of US athletes, as well as athletes from other nations connecting through the Miami Gateway.

- “July and August are the highest travel period for both Central America and the Caribbean, disruption of service and lack of available seats on other air carriers would disrupt families on vacation, business travel, unification of families, etc. It is impossible to assign a financial burden to this disruption of service, but it will be in the hundreds of thousands.

“In view of the airline industry’s economic crisis since September 11 2001, and the precarious financial position of Falcon Air Express, Sol Air and Aeromar; not receiving the requested exemption will surely put Falcon Air Express and Sol Air in Bankruptcy and will deal a devastating blow to Aeromar, from which they will never recover.

“Based on the above, DuganAir Technologies, Inc. trusts that, adequate substantiation has been provided for the FAA to decide whether a temporary exemption for full

compliance with FAR 25.365(e) at amendment 22 until August 30, 2003 could be granted.”

The FAA finds that action on this petition need not be delayed by Federal Register publication and comment procedures because those procedures would significantly delay issuance of the design approval and operation of the affected airplanes.

The Federal Aviation Administration's analysis/summary is as follows:

The FAA has considered the information provided by the petitioner, and has determined that there is sufficient public interest to grant a temporary exemption.

Title 14 Code of Federal Regulations (14 CFR) 25.365(e), at Amendment 25-0, requires that the airplane be designed to withstand the effects of a sudden release of pressure from the failure of a windshield panel, unless it is shown that the probability of that failure is extremely remote. While the use of probability is technically allowed, compliance has typically been shown with the assumption that the windshield blowout and resulting decompression event occurs.

For this decompression event, it was considered that the flightdeck door would provide openings, thereby preventing the rise of pressure induced loads which could exceed the capability of the surrounding structure. With the installation of the reinforced flightdeck door, there is a need to substantiate that the airplane complies with this requirement and, although the installation on the Boeing Model 737-300 is very similar to the installation on the already approved Boeing Model 737-200, there is sufficient difference to require further substantiation.

In considering this petition for exemption, it is appropriate to consider the probability of the windshield blowout and resulting decompression event. The FAA agrees with the DuganAir's assessment that the probability of such an event on two airplanes, during the specified timeframe, is extremely low, although the FAA does not necessarily agree with the absolute numbers suggested by the petitioner.

The granting of this exemption is beyond the relief granted under Special Federal Aviation Regulation (SFAR) No. 92-5. Under the provisions of the SFAR, certain airplanes modified with reinforced flightdeck doors were allowed to operate without regard to decompression and other applicable requirements until July 31, 2003. The FAA's intention in establishing the duration of the relief granted by the SFAR was to allow ample time for compliance issues such as the one covered in this exemption to be addressed and resolved. In this case, the petitioner has been unable to resolve all the issues in the time allotted. The FAA clearly indicated in the preamble to the SFAR that operators should assess their situation and seek alternative suppliers should their chosen supplier not be able to perform. However, based on the amount of additional certification

work necessary, there is reason to believe that the operator in this case was satisfied that they did not need to seek an alternative supplier. If this petition were to be denied, the operator, its customers, and the communities served would suffer the consequences--not the petitioner. As noted in the petition the impact of a denial would be grounding of a substantial portion of the operator's fleet, with major disruption in travel and commerce to certain communities. Considering that the issues to be resolved present a relatively low safety risk, denial of the exemption would not serve the public interest.

The petitioner has requested an additional month beyond the date of SFAR 92-5 expiration to finish certification. The FAA regards this time as more than sufficient. However, considering that a shorter compliance time is more susceptible to influence of unforeseeable circumstances that might trigger the need for a further extension, the FAA will grant the extension requested. Considering that this situation was anticipated in the rulemaking, and that the petitioner has already had over three months to address the certification issue, the FAA is not disposed to any further extensions or relief. Therefore, the operator should carefully consider the need to pursue alternatives should the certification process not proceed swiftly.

In consideration of the foregoing, I find that a grant of exemption is in the public interest and will not affect the level of safety provided by the regulations. Therefore, pursuant to the authority contained in 49 U.S.C. 40113 and 44701, delegated to me by the Administrator, DuganAir Technologies, Inc., is granted a temporary exemption from the decompression requirements of

§ 25.365(e) for two Boeing Model 737-300 airplanes, serial numbers 23631 and 23411, and US registration N371FA and N550FA, until August 30, 2003.

Issued in Renton, Washington, on July 31, 2003.

/s/

Ali Bahrami
Acting Manager
Transport Airplane Directorate
Aircraft Certification Service, ANM-100